

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

(i) Which of these forces keeps the Moon moving around the Earth?

(1)

- ☐ **A** contact
- ☐ **B** electrostatic
- ☐ **C** gravitational
- ☐ **D** magnetic

(ii) Which of these is a scalar quantity?

(1)

- ☐ **A** velocity
- ☐ **B** momentum
- ☐ **C** energy
- ☐ **D** acceleration

(Total for question = 2 marks)

Q2.

(i) Which of these forces keeps the Moon moving around the Earth?

(1)

- ☐ **A** contact
- ☐ **B** electrostatic
- ☐ **C** gravitational
- ☐ **D** magnetic

(ii) Which of these is a scalar quantity?

(1)

- ☐ **A** velocity
- ☐ **B** momentum
- ☐ **C** energy
- ☐ **D** acceleration

(Total for question = 2 marks)

Q3.

A man pulls a suitcase with a horizontal force, F , as shown in Figure 10.
Two other forces acting on the suitcase are labelled P and Q .

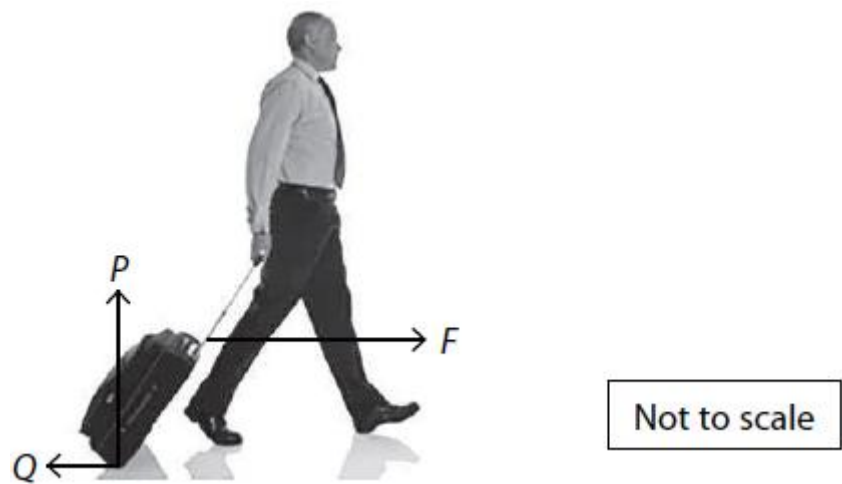


Figure 10

(i) Which of these gives the correct names for the forces P and Q ?

(1)

name of		
	force P	force Q
☐ A	upthrust	reaction
☐ B	reaction	friction
☐ C	reaction	reaction
☐ D	friction	upthrust

(ii) Draw an arrow on the diagram to represent the weight of the suitcase.

(1)

(Total for question = 2 marks)

Q4.

Figure 6 shows two gear wheels, P and Q.

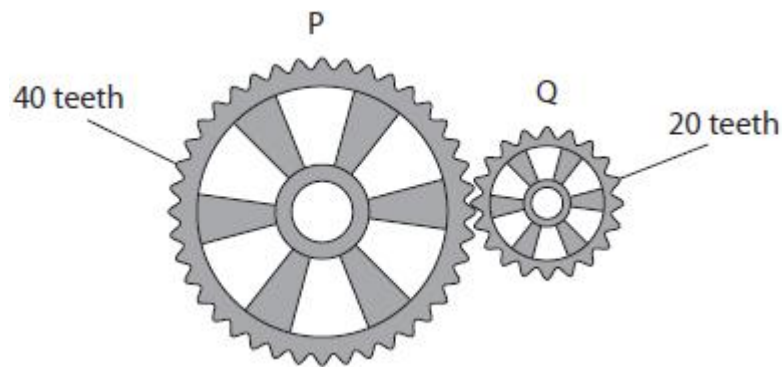


Figure 6

When P turns, it causes Q to turn.

P makes one complete clockwise turn.

Which of these shows the effect on Q?

- ☐ **A** Q makes half a complete clockwise turn
- ☐ **B** Q makes 2 complete clockwise turns
- ☐ **C** Q makes half a complete anticlockwise turn
- ☐ **D** Q makes 2 complete anticlockwise turns

(1)

(Total for question = 1 mark)

Q5.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Figure 19 shows four forces, P, Q, R and S, acting on a rod.

The rod can rotate around an axle.

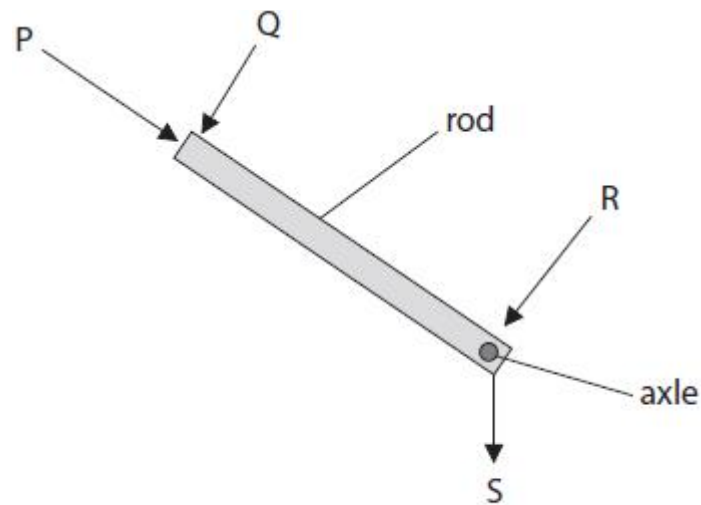


Figure 19

Which force will make the rod rotate about the axle?

(1)

- | | | |
|-------------------------------------|----------|---|
| ☒ | A | P |
| ☒ | B | Q |
| ☒ | C | R |
| ☒ | D | S |

(Total for question = 1 mark)

Q6.

Answer the question with a cross in the box you think is correct ☐. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☐.

Which of these is a vector?

(1)

- ☐ A distance
- ☐ B force
- ☐ C mass
- ☐ D work done

(Total for question = 1 mark)

Q7.

Answer the question with a cross in the box you think is correct ☐ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☐ .

Which of these statements is true for a vector quantity?

(1)

- ☐ **A** It has size only
- ☐ **B** It has direction only
- ☐ **C** It has direction and size
- ☐ **D** It does not have direction or size

(Total for question = 1 mark)

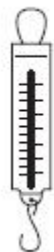
Q8.

Some questions must be answered with a cross in a box (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

Figure 2 shows four items of equipment that can be used in investigations.

In which of these does a force cause rotation?

(1)



spring balance

☐ A



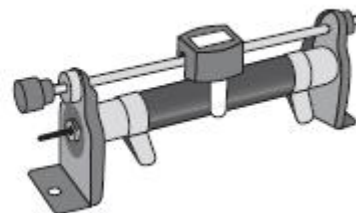
plotting compass

☐ B



thermometer

☐ C



variable resistor

☐ D

Figure 2

(Total for question = 1 mark)

Q9.

Figure 5 shows an arrangement of three gears, P, Q and R.

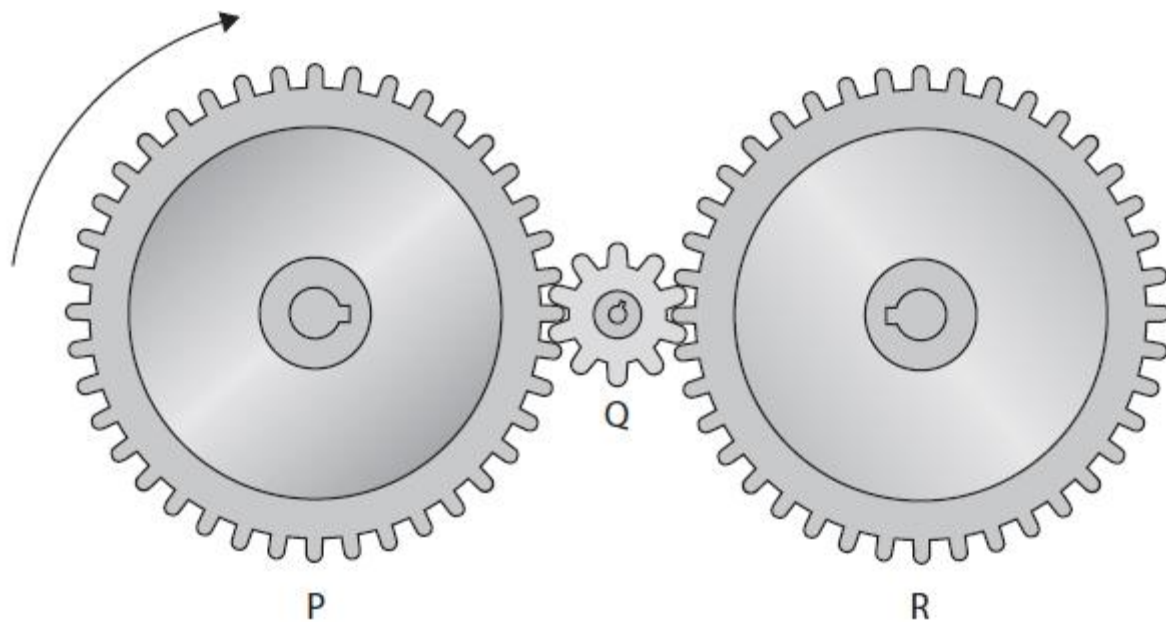


Figure 5

P and R have the same number of teeth.

P rotates in the direction shown.

State how the speed **and** direction of rotation of R compare with the speed and direction of rotation of P.

(2)

speed

.....
.....

direction

.....
.....

(Total for question = 2 marks)

Q10.

Figure 11 shows a lever used to lift a heavy load.

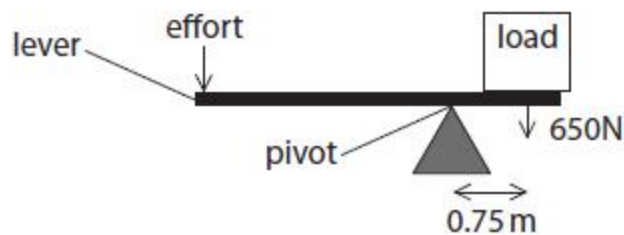


Figure 11

- (i) The weight of the load is 650 N.

The centre of the load is 0.75 m from the pivot.

Calculate the moment of the load about the pivot.

State the unit.

Use the equation

moment = force $\times$ distance from the pivot

(3)

moment = ... unit

- (ii) State the principle of moments.

(1)

.....

.....

- (iii) An effort of 160 N is applied to the end of the lever to balance the load in Figure 11.

Calculate the distance between the effort and the pivot.

(3)

distance = ... m

(Total for question = 7 marks)